Indiana Division of Fish and Wildlife
Department of Natural Resources
Autumn 1998

focus on Fish & Wildlife

Breeding duck populations remain high

The spring breeding populations for ducks are 20 percent higher than the long-term average, which should result in a good year for Indiana duck hunters, according to the state's waterfowl biologist.

Division of Fish and Wildlife biologist Melody Hartman reports the spring duck population in the traditional North American survey area was 39.1 million, an 8 percent decrease from last year's estimate but 20 percent higher than the long-term average.

The 1998 fall flight forecast is 84 million ducks, compared to 90 million last year throughout North America. The mallard flight forecast is 11.7 million, compared to 1997's 14.3 million. Waterfowl production was rated as good in Ontario and the same as last year in Wisconsin and Michigan, and lower in Minnesota.

Population Estimates, '98 vs. '97

	1998	1997
Mallards	9.6 million	9.9 million
Blue-winged teal	6.4 million	6.1 million
Gadwall	3.7 million	3.9 million
Scaup	3.5 million	4.1 million
Northern shovelers	3.2 million	4.1 million
Pintails	2.5 million	3.6 million
Green-winged teal	2.1 million	2.1 million
American widgeon	2.9 million	3.1 million
Canvasback	700,000	700,000
Redheads	1 million	900,000
Black duck (winter pop.)	243,400	241,700

Last year's duck harvest increased to an estimated 85,300 ducks from the 83,100 harvest the prior season, despite last winter's mild temperatures. Mallard harvest was down slightly at 47,900.

For Canada geese, hunters had a good year, according to Hartman. A record 52,200 Canada geese were harvested, with more than 50 percent of the birds being taken during the September early goose season before other goose populations appeared.

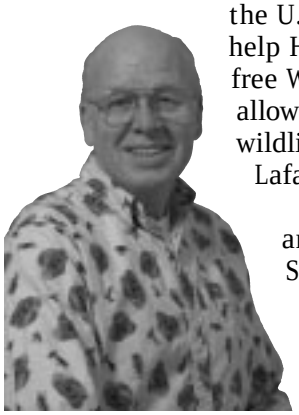
The 1998-99 Canada goose season looks different for waterfowlers. Due to declining numbers of the Mississippi Valley Population of geese, goose hunters face reduced opportunities for hunting. MVP geese nest along the west coast of James Bay in Ontario and winter throughout Indiana and other mid-latitude states.

The spring MVP estimate decreased by about 40 percent from last year, and the number of nests decreased by 28 percent, according to the U.S. Fish and Wildlife Service. Biologists speculate production may have been better than estimated due to the late timing of aerial and ground surveys of goose breeding territories.

The drop has resulted in restrictions of goose hunting. In Indiana, the number of hunting days were reduced, and bag limits for Canada geese were lowered from previous years. ➢pg 7

Topics this issue. . .

Director of *Fish & Wildlife*



Gary Doxtater
DFW Director

The Division of Fish and Wildlife has combined forces with the U.S. Department of Agriculture's Wildlife Services to help Hoosiers better deal with wildlife conflicts. The toll-free Wildlife Information Hotline, 1-800-893-4116, allows Indiana residents to get information on nuisance wildlife problems and tips on helping injured animals. Lafayette area residents may call locally at 765/496-3968.

Previously, people with wildlife conflicts or rescued animals called DNR offices to find out what to do. State wildlife biologists and naturalists, if they were available, would provide advice. However, wildlife biologists and naturalists are often working in the field on wildlife management and sometimes not at hand to answer questions.

Hoosiers can now call the wildlife hotline for biologically sound, legally accurate and consistent advice on handling situations dealing with wildlife. Home-owners can call to find out how to deal with squirrels living in an attic or how to help an injured Canada goose.

Wildlife specialists answer questions involving any wildlife animal conflicts and provide suggestions on dealing with the situations. The specialists have a wealth of wildlife information and resources at hand. They also have a background in wildlife and biology.

Indiana Nuisance Wildlife Hotline

1-800-893-4116

from Lafayette area, call 496-3968

The DNR and the USDA do not have the resources to remove animals from private properties nor are we able to handle injured or orphaned animals. We simply do not have the resources to handle every situation that occurs. Instead, we focus on the overall populations of wildlife and natural resources management.

Through the wildlife hotline, callers will receive referrals for local wildlife control professionals who have the required permit to perform removal services. Also, the wildlife hotline can recommend licensed wildlife rehabilitators who can properly care for injured or orphaned animals.

Our hope is to serve Hoosiers better by providing immediate suggestions to wildlife situations. Callers will no longer have to wait for wildlife biologists to call them back. The wildlife hotline will have immediate suggestions, and wildlife biologists can concentrate on continued work in habitat development and species management on public and private lands.

The wildlife hotline is available 8 a.m to 5 p.m., Monday through Friday (excluding holidays).

Division Mission

"To manage fish and wildlife for present and future generations, balancing ecological, recreational and economic benefits."

INDIANA DIVISION OF FISH&WILDLIFE

Focus on Fish & Wildlife is a quarterly publication from the Indiana Department of Natural Resources Division of Fish and Wildlife. *Focus on Fish & Wildlife* seeks to educate sportsmen and women, conservationists, wildlife recreationists and all Hoosiers on topics related to the management of Indiana's fish and wildlife resources.

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Visit the DNR Division of Fish & Wildlife website:

www.dnr.state.in.us/fishwild/index.html

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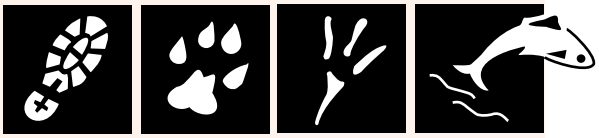
A legacy of wilderness

leg•a•cy *n* a gift or bequest received from an ancestor or predecessor



TEAMING WITH WILDLIFE

a natural investment

Indiana is in a position to leave a rich natural legacy for its citizens. Federal legislation under discussion in the Congress would provide states with permanent funds for conservation, outdoor education and wildlife-related recreation.

In July, a bipartisan group of legislators released draft legislation known as the Conservation and Reinvestment Act of 1998. Title III of the proposal embodies the goals of Teaming With Wildlife legislation.

The funding source for the Conservation and Reinvestment Act is outer continental shelf (OCS) oil and gas revenues instead of an excise tax on outdoor equipment, as previously proposed. Companies that lease OCS properties to extract oil and gas pay a royalty to the federal government. All OCS revenues currently go into the U.S. Treasury. With the passage of this legislation, half of the OCS money would be used for conservation.

Nationwide, the total revenue for Teaming With Wildlife would be about $350 million. Indiana would receive about $7 million per year for Teaming With Wildlife programs, which, when matched with 10 percent by state funds, would yield $7.7 million.

In the past 25 years, not one game animal has been placed on the federal endangered species list. Game biologists have learned to manage game species successfully, thanks to the monetary support of sportsmen and women who, for more than 50 years, have paid taxes on their equipment and purchased licenses to hunt and fish.

Now it is time to conserve the rich, diverse species in the state. Indiana has reintroduced a breeding population of bald eagles and released river otters into the state's waterways. But 86 other species such as the barn owl, the swamp rabbit and the Indiana bat are at risk in Indiana and would all benefit from this legislation.

Indiana's Nongame and Endangered Wildlife Tax Checkoff, so generously provided by many Hoosier taxpayers, yields about $350,000 per year for the nongame programs in Indiana. While this is a start, it does not cover the vast needs of the program.

If the voluntary tax checkoff funds could be combined with funds from the Conservation and Reinvestment Act of 1998, programs could be enhanced in the following areas:

- Conservation of nongame species
- Education about the wildlife in Indiana.
- Wildlife-related recreation.

Support for this legislation continues to grow in Indiana. A coalition of 60 groups endorse the proposed legislation. Sportsmen's groups, wildlife watching groups, conservation organizations, businesses and tourism associations support Title III of the Conservation and Reinvestment Act of 1998.

Let us leave a natural legacy for Indiana.

Conservation and Reinvestment Act of 1998, Title III

Title III of the Conservation and Reinvestment Act embodies the principles of the Teaming With Wildlife initiative. The title aims to do the following:

- Provide preventive approach to fish and wildlife conservation.
- Cover species not covered in the Wildlife and Sportfish Restoration programs.
- Provide for working with landowners in a flexible, incentive-based non-regulatory manner.
- Bring a permanent, dedicated funding source for fish and wildlife conservation.
- Give the decision making to the states, not the federal level.
- Have an administration like the highly successful Wildlife and Sportfish Restoration programs.

prepared by **Betsy Ingle**, Teaming With Wildlife coordinator. For more information about the legislation or the coalition, please contact Ingle, through email at ingle@dnr.state.in.us or by calling 317/232-4080.

Surveys lead to improved fishing

Biologists use a portable generator to supply an electrical charge to electrodes that hang over the boat's bow. Fish within the field of electricity are momentarily stunned so dip netters can scoop the fish up.

"Catchin' any? Any size to 'em?" ask anglers when they discover Indiana's fisheries biologists conducting lake surveys.

A lake survey is a scientific examination of a lake's physical, chemical and biological characteristics. Biologists for the Division of Fish and Wildlife survey about 50 lakes annually. Public access and potential benefit to anglers are two criteria used to establish lake survey schedules.

The information collected from lake surveys is used to inform Hoosier anglers of the best fishing lakes. This information also serves as the basis for sound fish and watershed management decisions.

The objectives of lake surveys are to determine the condition of the fish and plant communities, water quality and to gain a basic understanding of land use in the watershed. The lakes are no better than the water that flows into them.

When a fishery biologist begins a lake survey, the biologist will first look at a map of the lake to see bottom contours, maximum depth, inlets, outlets, surface acreage, water volume and location of the water level control structures. After motoring to the deepest area of the lake and anchoring the boat, the biologist will check the physical and chemical characteristics of the water that are most important to fish.

Lakes vary considerably in the production of fish and fish food organisms because of differences in physical and chemical conditions.

Physical Characteristics

Water temperature is one of the first characteristics checked. Tempera tures are taken every two feet from the surface to the lake bottom.

While fish can tolerate a wide range of temperatures, all fish species have preferred temperatures. Water temperatures should not exceed 85 degrees Fahrenheit for optimum feeding and growth of warm-water species. Certain coldwater species, such as cisco, trout and salmon, are quite specific in their temperature requirements. Summer temperatures for coldwater species should not exceed 70 degrees Fahrenheit.

Water clarity is important because plants produce oxygen only in the presence of sunlight, and dissolved oxygen is vital to all aquatic life. Water clarity determines the depth to which light penetrates. Many fish species such as largemouth bass, bluegill and northern pike feed primarily by sight, and they grow faster in clear water than in turbid water. Water clarity is measured by lowering an eight-inch diameter black and white secchi (*sek-key*) disk into the water and recording the maximum depth at which it can be seen.

Generally, the clearer the water the better its quality. Water clarity is sometimes low because of dense concentrations of microscopic size plants and animals (plankton) or heavy silt loads resulting from poor land use in the watershed.


Secchi disk – a black and white disk – shows water clarity.

When the Secchi disk reading is less than two feet, the biologist tries to determine cause of the turbidity. After checking other conditions in the lake and watershed, he may be able to make recommendations for making the water clearer.

Classification of bottom material is important since bottom type affects the overall productivity of a lake. A lake's bottom provides the spawning habitat for fish. Lakes in good farm country where the soils yield large crops grow more pounds of fish than lakes in poor soil areas.

Walleye and smallmouth bass prefer clean gravel and rubble for spawning. Bluegill, largemouth bass and catfish will spawn on practically every bottom type, including muck, sand, marl, gravel and clay. Northern pike require large shallow areas of flooded vegetation on which to deposit their eggs.

Chemical Characteristics

The chemical characteristics of a lake are studied, also. The amount of dissolved oxygen present in a lake is very important. It indicates the suitability of the water for sustaining life. Fish, and the organisms on which fish feed, require dissolved oxygen.

Warmwater fish require about five parts per million (ppm) of dissolved oxygen. The native cisco and trout

require 7-8 ppm. Most Indiana lakes stratify in mid to late summer, where a layer of warm water containing oxygen rests on top of a layer of cold water that's low in oxygen and unsuitable for fish. The warm upper layer is lighter than the deep cold water, therefore little mixing occurs and fish are restricted to the oxygenated zone.

To determine if a lake will support trout, the biologist measures water temperatures and dissolved oxygen concentrations in August or September, a time of year when water quality is usually poorest.

Practically every lake has cold water in its deepest areas, but few lakes have a layer of cold water high in oxygen.

Total alkalinity, a measurement of chemical nutrients, particularly calcium carbonate, provides another index of a lake's ability to produce fish. Lakes where total alkalinity measures less than 50 ppm are classified as unproductive, and the pounds of fish produced is normally low. The total alkalinity level of most Indiana lakes is within the range of 50-200 ppm, and these lakes are capable of producing large amounts of fish.

The acidity measure, or pH, is another important water quality parameter. It is generally agreed that for good sport fish production and growth of fish food organisms, pH values should be between 6.5 and 8.5.

Biological Characteristics

A biologist examines a lake's plant life to discover the types and abundance of aquatic vegetation. Too many plants are detrimental to the fishery and most recreational uses. Dense plant growth provides unnecessary protection for small panfish and utilizes nutrients that would otherwise be available for plankton growth.

Heavy weed growth also makes it difficult for anglers. Weed control with an aquatic herbicide is usually recommended when aquatic vegetation covers more than 25 percent of the lake.

The final evaluation of a lake is its fishery itself. A fishery biologist collects samples of the lake's fish. Two methods are used to sample the fish community: netting with either gill nets or trap nets and electrofishing. Each method is used to sample different species of fish.

Yellow perch, northern pike, muskellunge, crappie, white bass, walleye, catfish and gizzard shad are commonly captured with gill nets. The nets – 250 feet long and six feet deep – are placed at various depths throughout the lake.

Trap nets set in shallow shoreline areas are effective for collecting bluegill, redear, crappie and catfish.

Bass have good vision, so they do not trap or net easily. However, biologists sample bass by operating a electrofisher or shocker-boat in shallow shoreline areas at night. Bass move into the shallows to feed after dark.

A portable generator placed in the boat supplies current to electrodes that hang over the boat's bow into the water. Fish within the field of electricity are momentarily stunned, and dip netters scoop the fish up and place them in tubs of fresh water where they quickly revive.

All fish collected during surveys are listed by species, weighed and measured. Biologists remove scales from fish collected in order to determine the age and growth rate. Knowing how fast fish are growing is important, since growth rate is an excellent indicator of lake conditions.

Once the data is collected, the biologists compiles the data, analyzes the information and documents his findings in a lake survey report.

Fisheries biologists use lake surveys to identify areas where additional, in-depth information is needed to make resource management decisions.

The public may request reports on lakes surveyed by Division of Fish and Wildlife biologists. The reports are available from the regional fisheries offices: North Region office at Tri-Lakes Fisheries Station, 219/691-3181, and South Region office at Avoca State Fish Hatchery, 812/279-1215.

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prepared by **Gary Hudson**, north region fisheries supervisor.

Large gill nets are placed throughout a lake to sample specific species. Fish such as perch, northern pike and muskies are commonly captured with gill nets.

Top 5

Public Hunting Areas for Waterfowl

A variety of factors come into play when considering the upcoming waterfowl seasons, so knowing everything you can about migrating ducks and geese may help to increase your hunting success. To aid in your search for waterfowl, here are the top five public waterfowl hunting areas in Indiana with a brief description of each property.

While these prime public hunting lands have brought in success to thousands of Hoosier sportsmen, the Division of Fish and Wildlife offers various smaller wetland conservation areas waiting for waterfowlers and migrants arrival. In addition, many of the division's Fish and Wildlife areas can provide a satisfying hunting experience to local hunters who live close by and can watch for the arrival of waterfowl.

Keep in mind, high harvests generally equal high hunter numbers and popularity. Because of this, the Division of Fish and Wildlife offers several reserved hunt days at the properties. Hunters must apply in advance for these reserved hunts. The reserved spots are drawn randomly. Contact the division at 317/232-4080 or the individual property for property regulations and hunting availability.

On non-reserved hunt days, the properties offer daily drawings or first come, first served hunting depending on the number of hunters who show up to hunt.

1

Topping the list of most harvested birds for a public hunting property is Kankakee Fish and Wildlife Area, located in Starke County. This 4,000-acre North Zone property has some 1,475 acres of wetlands between Yellow and Kankakee rivers. Duck and goose hunting is available from blinds with the property providing boats.

During the '97 seasons, the reported duck harvest topped 3,900 birds, a 26-percent increase from the prior year's seasons and a 63-percent increase from the five-year harvest average for the property. More than 4,300 duck hunters visited Kankakee in 1997-'98 seasons. The property always has more hunters than hunting opportunities.

2

Another North Zone property, Willow Slough Fish and Wildlife Area, offers the 1,500-acre J.C. Murphey Lake. Duck hunting from blinds is available as are open areas for waterfowl hunting.

Willow Slough is also popular with waterfowlers with more than 3,900 sportsmen and women checking in at the property for last year's duck seasons. The reported duck harvest for the property was 3,243, increasing the harvest by 23-percent from 1996.

For geese, Willow Slough is part of the north zone. Most geese harvested at Willow Slough are generally attributed to the early Canada goose season in September.

3

Hovey Lake Fish and Wildlife has had the third largest duck harvests of public hunting properties for the past two years. Located in the state's far southwestern point, Hovey Lake offers excellent opportunities around the 1,400-acre lake, four miles of Ohio River shoreline and several marshes. The property also has some 1,600 acres of cropland providing adequate feeding grounds for visiting geese.

Hovey Lake waterfowl hunters bagged some 2,400 ducks last year. The reported harvest marked a 50-percent increase, the largest increase last year for a state property.

This southern-most property is Indiana's No. 1 goose hunting area and a haven for goose hunters. While 1997 weather conditions limited Canada geese numbers, the property's five-year average ranges around 825 birds harvested.

4

Coming in as No. 4, LaSalle Fish and Wildlife Area offers duck and goose hunting from marsh blinds or jump shooting on river bayous. Hunters may hunt in the old bayous on the north side of the river and in designated areas on the river's south side.

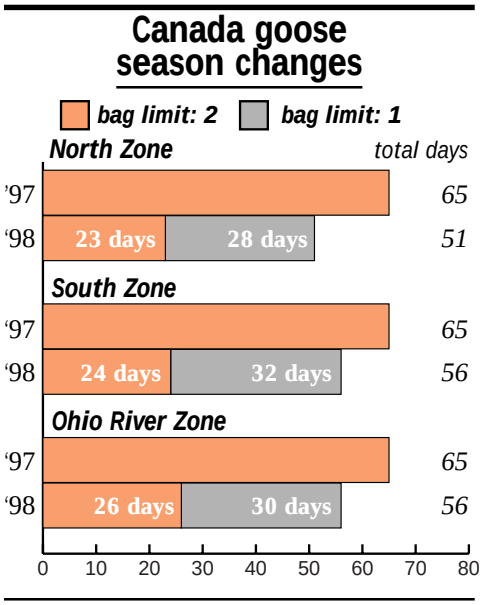
Waterfowlers harvested 1,520 ducks in the 1997 seasons.

5

Monroe Lake rings in as the fifth highest duck harvest for 1997 for public waterfowl properties with 1,259 birds reported. The 1997-98 harvest was about a 25-percent drop from the 1996 duck season, but only an 8-percent decrease from the five-year average

The man-made Monroe Lake is located in Monroe County near Bloomington. The 10,750-acre lake borders the Hoosier National Forest. In addition to lake hunting, Monroe offers 349 acres of wetlands scattered among Brown, Jackson and Monroe counties. The wetlands vary in size from one acre up to 152 acres.

Ducks continued



The outlook appears slightly better for the Southern James Bay Population of geese. The SJBP spring population increased from 95,102 to 117,060; however, the non-breeding component of the flock increased on the mainland by 846 percent and by 106 percent on Akimiski Island. As a result, liberalizations in the SJBP restricted areas will remain in place for the upcoming year.

Harvest levels of all migrant waterfowl are impacted by the number of birds coming through an area. Weather plays the most significant role in bird migration. While advance weather forecasting is still unreliable, reviewing historical data on when waterfowl appear in various zones can provide insight into future possible activities.

Reviewing duck migration for the past five years indicates that peak migration in the North Zone is around Nov. 18. In the South Zone, ducks generally peak around Dec. 3.

Similarly, Canada geese reach a peak migration in Indiana's North Zone around the end of November, Nov. 30. Meanwhile, the Canada goose migration peaks in the South Zone two months later around Jan. 25.

prepared by **Melody Hartman**, waterfowl biologist.

1998-99 Indiana Waterfowl Seasons

Ducks, Coots and Mergansers

North Zone	Oct. 17 - Dec. 6 Dec. 19 - Dec. 27
South Zone	Oct. 24 - Nov. 1 Nov. 21 - Jan. 10
Ohio River Zone	Oct. 31 - Nov. 1 Nov. 21 - Jan. 17

Geese (Canada and White-fronted)

North Zone	Oct. 17 - Oct. 25 Nov. 21 - Jan. 1
SJBP	Oct. 17 - Oct. 19 Nov. 27 - Dec. 28
South Zone	Nov. 27 - Jan. 21
Ohio River Zone (excluding Posey County)	Dec. 7 - Jan. 31
Posey County	Nov. 27 - Jan. 31*

*In Posey County, the Canada goose season ends on Jan. 31 or when a quota of 760 geese is reached at Hovey Lake FWA, whichever comes first.

Snow Geese

Statewide	Oct. 17 - Oct. 25 Nov. 21 - Feb. 26

Make the Call before hunting

Register with HIP

- Harvest Information Program -

1-800-WETLAND

Required for all licensed migratory game bird hunters in Indiana

Parasitic roundworms reside in raccoons

Raccoons are one of Indiana's most common wildlife species. They have adapted well to human disturbance. Raccoon numbers are higher now than they were before Indiana was settled.

Perhaps due in part to their high densities, raccoons have become a growing public health concern in Indiana. Raccoon rabies and raccoon roundworm are two very dangerous diseases that can sicken or kill humans and other animals.

Raccoon rabies is not currently a problem in Indiana. No cases of the raccoon strain of the virus have been identified here, but the disease is headed this way. Rabies has plodded through the raccoon population from the East Coast across Pennsylvania and into Ohio. Ohio officials confirmed 59 raccoon rabies cases on its eastern border last year. The rabies epidemic could spill into Indiana in less than three years.

Raccoon roundworm, on the other hand, is a threat to Hoosiers right now.

Baylisascaris procyonis is a common roundworm found in raccoons. The parasite is not fatal to raccoons but can have dramatic effects on other animals, as well as humans. A variety of animals including mice, squirrels, rabbits, woodchucks, birds and dogs are susceptible to larval infections, which often produce severe neurologic disease.

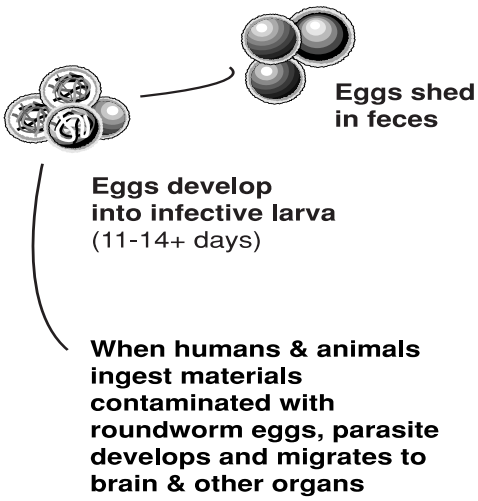
In raccoons, the roundworm lives as an adult in the small intestine and releases eggs in the animal's feces. Raccoons can deposit millions of eggs in their feces each day. It's when these eggs are consumed by other animals or humans that problems can occur. Most eggs are deposited in latrine sites – the areas favored by raccoons for defecation.

Unlike in raccoons, roundworms in humans may migrate into the eyes causing blindness or into the brain causing serious neurological disorders and, in severe cases, death. People become infected by consuming the microscopic eggs. Young children are at greatest risk because of their tendency to put their hands and most any object into their mouths.

A fatal case that occurred a decade ago involved an 18-month-old Illinois boy who became infected from chewing on bark and woodchips from contaminated firewood brought into his home. Researchers estimate the child consumed 46,000 to 64,000 eggs, which could be present in just 2-3 grams of raccoon feces.

The firewood came from a fallen tree apparently used as a latrine site by raccoons. Other known fatal cases involved children playing in or near raccoon latrines and consuming contaminated soil. The parasite has been identified in a half dozen cases of severe central nervous system disease in young children and in several dozen cases of eye disease in adults.

The damage roundworm larvae cause depends on how many eggs are consumed and where the larvae migrate in the body. An adult man,



Purdue professor leads research on parasite

When researchers and physicians throughout the world have questions about raccoon roundworm, they call a Purdue University professor.

Dr. Kevin R. Kazacos, professor of veterinary parasitology at Purdue's School of Veterinary Medicine, has researched raccoon roundworm for nearly 20 years. He is considered the world authority on this parasite. Kazacos has investigated numerous cases of this disease in animals and humans throughout the nation.

Kazacos' pioneering studies led to the widespread recognition of the raccoon roundworm as a cause of neurologic disease in animals and to its identification as a cause of eye and neurological disease in humans. Kazacos' laboratory is currently researching better methods for diagnosis, treatment and control of the infection in animals and humans.

The Division of Fish and Wildlife has provided funding for his early research on the disease.

Trapping raccoons is a valid management technique to reduce raccoon numbers and damage to property.

for instance, may never notice any symptoms of a minor infection of a few eggs. A small child or animal that has consumed a lot of eggs will have more larvae entering the brain and can suffer a great deal of neurological trauma, causing illness or death.

Purdue researchers estimate about 70-80 percent of raccoons in Indiana are infected with the roundworm, with the highest prevalence occurring in the fall. Raccoon latrines are common, so the potential for human infection is high. However, severe infections are rare due to the fact that people seldom consume fecal contaminated materials.

Treatment of larval infection is very difficult and often ineffective. Little can be done to reverse the damage to the brain or eyes, so prevention of infection is very important. Using simple precautions, one can prevent infection.

Adult roundworms

The best line of prevention is to avoid contact with raccoon feces, especially latrine sites. Toddlers should be kept away from soil and other objects that may have been contaminated with raccoon feces.

Raccoons should be kept out of dwellings and outbuildings. They should not be encouraged to visit homes or yards for food. Raccoons kept for rehabilitation or for other reasons should be on a strict deworming program beginning at an early age of 6-8 weeks.

Raccoon roundworm eggs are very difficult to kill. Roundworm eggs can survive in the soil for 3-5 years, even under adverse weather conditions. Eggs will desiccate, or dry out, in completely dry attics or barn lofts, but this may take weeks to months. Another problem with the eggs is they are sticky and tend to adhere to surfaces.

Roundworm eggs will withstand most disinfectants but can be killed with heat. Areas are best decontaminated by thorough torching using a portable propane torch, such as a weedburner. Boiling water, steam or other types of burning can be used to rid an area of the parasite.

Any contaminated materials, such as hay or straw, should not be used as feed or bedding for other animals. Cages or enclosures used to house raccoons should not be used for other animals unless the areas have been thoroughly decontaminated using heat. Feces-contaminated hay or straw from barn lofts should be carefully removed and burned. Wear gloves and a filter mask during clean up, and wash thoroughly when done.

Wild animal rehabilitators, raccoon hunters and trappers, and owners of pet raccoons are all at higher risk of coming into contact with the eggs of this parasitic roundworm. If you have close contact with raccoons, you should pay extremely close attention to safety measures such as wearing gloves, washing hands, avoiding/preventing fecal contamination and cleaning contaminated areas.

prepared by **Jon Marshall**, public affairs supervisor with assistance from Dr. Kevin Kazacos, Purdue University.

Protect against Raccoon Roundworm

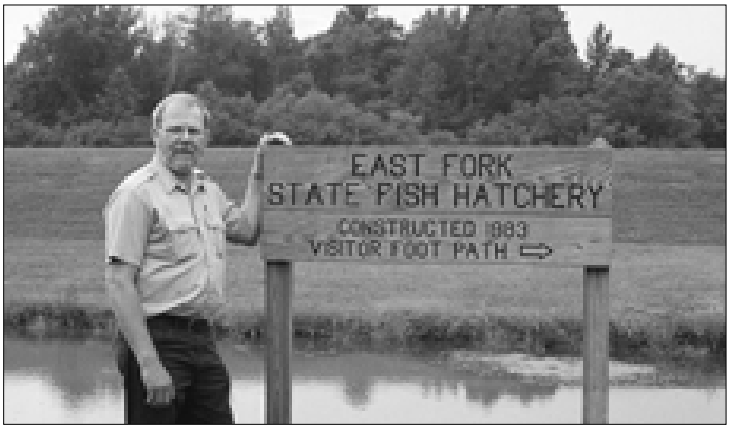
- Secure house & outbuildings from nesting raccoons.
- Clean contaminated areas with heat. *Disinfectants have little effect on parasite eggs.*
- Remove & destroy materials, like animal feeds & bedding, contaminated with raccoon feces.
- Hunters, trappers & wildlife rehabilitators should wear gloves when dealing with raccoons and their nest sites.

Precautions such as wearing gloves need to be taken when handling raccoons to reduce contact with raccoon roundworms.

People in
Fish & Wildlife

Overseeing a state fish hatchery

Rick Peterson manages East Fork



Seeing the excitement on the face of an angler as he lands a state-spawned fish has been a career highlight for fish hatchery manager Rick Peterson.

"My first experience with catching fish I raised was on a fishing trip for walleyes produced at Fawn River," said Peterson. "A local fisherman invited me to fish for walleyes in Clear Lake in the early '70s.

"As we were fishing, I could see the pleasure on his face of fishing for the walleyes, the same fish I had produced a couple of years back."

With almost 30 years of work, Peterson is still producing fish for Indiana waters, now as the manager of the East Fork State Fish Hatchery in southwestern Daviess County.

When he first began in the late '60s, Indiana's hatcheries were remnants of the 1930s WPA labor movement. The fish management philosophy of the day was tied to growing a limited number of fish species – bass, bluegills and catfish mostly. Hatchery managers also served double duty as district fisheries biologists.

"As the management side grew, the hatchery side had to come along," Rick said. "We had to take them from the general species to new stocked species."

To meet the new management philosophy, the state upgraded the facilities of many of the hatcheries in the '70s. In the early 1980s, Indiana began planning for a new coolwater fish hatchery near the Glendale Fish and Wildlife Area. Peterson oversaw the construction and management of the 80-acre East Fork Fish Hatchery.

Around the same time, the Division of Fish and Wildlife separated the duties of hatchery managers from the district biologists. Rather than focusing on fish management, Rick stayed in fish culture to manage the newly-built East Fork.

"I've always enjoyed the hatchery end of it," Peterson said. "You get the results in the same production year and are able to make corrections needed right away. In fishery management, you have to wait a few years to see the results."

Peterson has seen many results and changes during his 30 some years in Indiana's fisheries section. "The number of species has increased dramatically from bass, bluegill, catfish and crappies to muskies, walleyes, hybrid striped bass. Not only have the species numbers changed, but hatcheries are asked for different sizes and larger numbers of fish than previously."

Today, East Fork hatchery produces Indiana's striped bass, hybrid striped bass, largemouth bass, walleye, muskellunge, channel catfish and several species of forage fish such as fathead minnows. Previously, the southern hatchery produced northern pike and tiger muskie for stocking in public waters.

His day-to-day work has changed, also. In his earlier years, as much as 80 percent of his time was hands-on fish culture. Now, Rick spends less than 15 percent of his time working with fish. Most of his day is occupied by the hatchery management tasks from budgeting and purchasing to personnel management and regulations.

"Much of the fish culture work has shifted to the assistant manager, but I do get to touch a fish now and then," Rick said.

The daily work for hatchery staff involves feeding fish, checking for disease, cleaning fish tanks, inventorying the fish for numbers and lengths, adjusting the feed schedules accordingly, pond fertilization, controlling aquatic weeds, transporting fish, in addition to maintaining the property itself.

Peterson said he feels fortunate to have started 30 years ago to see the state develop fish hatcheries to the modern day operations. "The true definition of fish management in Indiana didn't start until the mid or late 60s," Rick said. "I was able to get in on the ground floor. It's really been exciting at times."

According to the hatchery manager, "One of my goals when I first started was to never quit trying to do it better. I think too often we get in the routine of 'Well, it works this year, so let's do it again next year.' I tell my staff that I don't want to be satisfied just because it works.

"Just because a fish swims away doesn't mean that we can't make it swim away faster next year."

Under Peterson's supervisor, East Fork hatchery was Indiana's first hatchery to spawn hybrid striped bass. "The first time they were ever spawned in the state was at East Fork. We certainly did not develop the techniques, but we were the ones who had to use the techniques and modify them to fit our situation and spawn hybrid striped bass."

"I don't see any drop in interest from anglers. They seem quite positive on their outlook on hatcheries."

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prepared by **Mark Cottingham**, editor of *Focus on Fish & Wildlife.*

Natural Resources Credit Card

Nature lovers, environmentalists and conservationists can display their affection for the outdoors when they use the new Indiana Natural Resources Credit Card.

A small portion of each transaction is donated by VISA to the Natural Resources Foundation to protect and preserve important Indiana natural and cultural resources.

For information on credit card, phone the Foundation at 317/233-1002 or write to NRF, 402 W. Washington St. W256, Indianapolis, IN 46204.

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State provides grants for public shooting ranges

The DNR provides grants to local government and not-for-profit groups to develop and renovate shooting ranges and archery facilities for public use.

Grant applications are available from the DNR's Division of Outdoor Recreation and are due back by Nov. 1.

The shooting range program helps to provide safe places for the sportsmen and women to enjoy shooting sports. Quality ranges are vital to hunter education, which teaches firearms safety and ethics.

The grant program is federally funded through Wildlife Restoration Program, commonly called Pittman-Robertson Program.

For information on the grant program, contact the Division of Outdoor Recreation, 317/232-4070.

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Hunter survey participants win

Ryan Muckerheide of Columbus, Ind., received a lifetime hunting license for responding to the 1997 Deer Hunter Harvest Survey, and Charles E. Martin of Clarksville, Ind., received $600 in Hoosier Lottery tickets for responding to the 1998 Small Game Harvest Survey.

Both hunters were randomly selected from hunters who received and responded to the Division of Fish and Wildlife's annual hunter surveys.

Hunter surveys provide valuable information on hunter distribution, hunter efforts and harvest success rates. Incentives such as lottery tickets increase surveys' response rate.

(Top) Fair-goers line up for the cookout. (Above) Frank Wyant & Bud Dennemann, Indiana chapter – National Wild Turkey Federation prepare turkey kabobs.

(Below) Jan and Larry Sowinski from the Indianapolis Flycasters, serve trout donated by the Northwest Indiana Steelheaders.

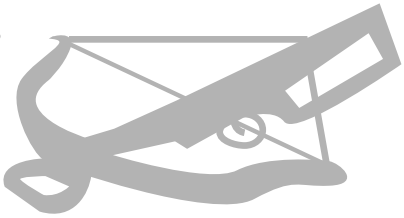
A taste for game

Indiana sportsmen and women served wild game to about 1,000 Indiana State Fair visitors at the annual Wild Game Cookout.

The Division of Fish and Wildlife sponsors the event with financial support from Meijer stores, Armour-Swift-Eckrich, KBI Bakery and Kingsford Charcoal.

The cookout relies on numerous conservation groups to come together to give the public a sample of wild game.

Crossbows are not allowed in early archery season for deer



Hunters may use crossbows as legal equipment only in the late archery season, Dec. 5-Jan. 3, and only for taking antlerless deer. Crossbows are not legal for the early archery season.

Hunters with a handicap hunting permit allowing special equipment may use a crossbow in any deer season and may harvest antlered or antlerless deer.

For information, refer to the *1998-98 Indiana Hunting and Trapping Guide*, available at sporting goods stores.

Lifetime licenses

an Indiana family tradition

The Indiana lifetime license creates a lasting relationship with Indiana's wilderness. Avid sportsmen and women enjoy the opportunities of Hoosier fish and wildlife resources. With a lifetime license, hunters, anglers and trappers have a cost-saving, worry-free way of being an active outdoor enthusiast.

A lifetime license can be given as a gift for birthdays, holidays, graduations or any occasion.

Lifetime licenses are nonrefundable and nontransferable. Youth hunters born after 1986 must complete a sanctioned hunter ed. program.

Benefits of Lifetime License

- Discounted for seniors
- Saves money with avid use
- Protects against future license increases
- Funds fish & wildlife trust for resource conservation
- Eliminates need to purchase new licenses each year
- Creates lasting memories

For a lifetime license application, call the DNR Customer Service Center at 317/233-4976.

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Department of Natural Resources
402 W. Washington St., Room W273
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